Notes on Australian Muscoidea IV.

The genus Microtropeza and some Phaoniinae.

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(*Read before the Royal Society of Queensland, 28th November,* 1938.)

Genus *Microtropeza* Macquart.

Microtropeza Macquart, Dipt. Exot. suppl. 1, 1846, 185.
Tasmaniomyia Townsend, Canad. Ent. XLVIII. 1916, 152.
Gerotachina Townsend, ibidem. 152.

The synonymy is new. The genus belongs to the second section of the Tachininae in which the forceps are fused along the median line. Its position within that section is undoubtedly with the *Echinomyia-Peleteria* group of genera which is the group 3, Eutachinae, in Lundbeck's Diptera Danica. Several characters of the genus tend to show this is the true relationship, as has been seen by several authors, but it was frequently confused with the Dexiinae (see Tillyard, Ins. Austra. N. Zeal. 1926, p. 376), and Malloch quite unnecessarily placed it in a tribe of its own.

In 1856, Walker placed a species in *Echinomyia* which is the earliest expression of the true relationship. Schiner is credited with the same view but I failed to find the reference. Engel in 1925 certainly indicated this position in his remarks—"*Microtropeza* Macq. zeigt im Bau der Genitalien eine sehr grosse Ähnlichkeit mit deren bei Echinomyia Duméril." I regard the genus as the most primitive of those placed by me in the second section of the Tachiniini.

In the several species, there is a tendency for the third antennal segment to grade from long to short; the character does not mark generic values as frequently happens, and the species vary widely in other ways, which seem to have led authors to misunderstand the genus. All the known species are highly ornamented or brightly coloured and therefore attractive, so it is not surprising to find the synonymy is involved. By determining which of the characters used by early authors are unique to the species, and aligning these with those used by recent authors, the identity of most forms is brought out with remarkable clearness. It is therefore expected that the synonymy given here is unlikely to need much amendment when the types are re-examined. There is one described species for which I can find no valid name and therefore I suggest a new name here, but leave unnamed those species hitherto not referred to in literature.

The life history of the species is unknown, but the relationships suggest that they may be parasitic on some large ground-frequenting Lepidopterous larva. The flies occur in swampy areas, where the adults are usually found on or near the ground, and are not uncommonly seen on flowering tea-tree (*Melaleuca* sp). Possibly the fly lays its eggs on reeds and grasses, to be swallowed later by the host, which habit is in conformity with related genera.

Key to species of *Microtropeza*.

1. With a short transverse band on the second abdominal tergite, white in colour and complete across the median line. Face mostly white in ground colour, this contrasting with yellow around it. The third antennal segment is deep black .. .. *nigricornis* Macq.

   With the transverse band on the second abdominal segment interrupted on the median line so as to form two white spots. Female with the anterior tarsi very broad and the thoracic markings are reduced .. .. .. *sinuata* Don.

   With the white on the second tergite reduced to a single median spot or absent 2

2. The markings of the thorax have mainly disappeared, leaving a scanty more or less uniform pulverulent white there. The blue-black abdomen has the white restricted to two apical tergites. Large species .. .. .. *fallax* new name

   Smaller in average size than *fallax*, with thoracic markings highly developed, including a dense white median stripe interrupted at suture, the apical part rarely missing on inferior specimens. The abdominal markings variable in extent on a blue-black ground. .. .. *intermedia* Mall.

   With the abdomen mainly brown, the restricted black median stripe is variable in extent. Medium to small species *obtusa* Walker

All described forms fall into one or other of the species included in the above key with the exception of *viridiventris* Macq. that may be allied to a new species not included above. This new species has an entirely metallic abdomen with a slight trace of a pulverulent covering. The four white stripes of the thorax are complete. The antennae are less specialised in shape than that on any other species examined, but this structure varies widely and is of questionable value and on two species it takes an intermediate form.

Microtropeza sinuata Don.

M. sinuata Donovan, Epit, Nat. Hist. Ins. New Holland, Dipt. fig. (*Musca*).—Wiedemann, Auss. zweifl. Ins. ii. 1830, 384 (*Musca*). Guerin, Rev. Zool. vi. 1843, 270 (*Rutilia*). Macquart, Dipt. Exot. suppl. 1, 1846, 186; suppl. 4, 1849, 226. Schiner Novara Reise Dipt. 1868, 316. Brauer and Bergenstamm, Denk. Akad Wiss. Wien. lvi. 1889, 152; lx. 1893, 176 (possibly should be removed to stand under *fallax*). Townsend, Ann. Mag. Na. Hist. (10) ix. 1932, 40. nec Engel, nec Malloch.

T. bura Walker. List Dipt. B. Mus. iv. 1849, 760 (*Tachina*).

M. skusei Bergroth, Stett, Ent. Zeit. 1894, 73.

M. ignipennis Macquart MSS.—Brauer Sitz. Akad. Wiss. Wien. cviii. 1899, 510.

M. latimana Malloch, Proc. Lin. Soc. N. S. Wales, liv. 1929, 286; lv. 1930, 100.

The synonymy is new. I have not seen Donovan's illustration, but Wiedemann has given a detailed colour description of it, mentioning "hinterleib rothlichbraun, am zweiten Abschnitte zwei weissliche punkte . . . . . ," a very decisive character. These two white spots on the second abdominal segment, occur also in the description of *T. bura* Walk. whilst *M. skusei* Bergroth is said to have the white fascia interrupted on this segment, this amounting to the same character. There can be little doubt that *ignipennis* B. & B. and *latimana* Malloch are the same species because the flattened broad anterior metatarsus of the female is also a decisive character, unique to the species. This form of the metatarsus was used by Brauer to distinguish *ignipennis* from that form

regarded by him as being the typical *sinuata* and he did not realise the character is limited to the sex. The species referred to as *sinuata* by Brauer and Bergenstamm, may be the same as a species so called by Engel and by Malloch, and re-named below as *fallax*. On *sinuata*, the abdomen is strongly marked with brown; the white marking on the second abdominal tergite is broad and no median marginal bristles occur there. The thoracic markings are only moderately developed, and without the white median line.

Hab.—The species is known to me only from southern Queensland and New South Wales, but doubtless it is widely distributed over southern areas of the mainland. It occurs also inland, at least as far as Chinchilla.

Microtropeza nigricornis Macq.

M. nigricornis Macquart, Dipt. Exot. suppl. 4, 1849, 226.

Macquart described this species as having a white face and a black third antennal segment, so there can be little doubt that he had before him a Tasmanian species; in this case his locality seems to be correct.* In addition there is a complete white fascia on the second abdominal segment and the anterior tarsi of the female are normal. In other respects the fly is very like *sinuata*.

Hab.—Tasmania. It is one of two species known to me only from this locality.

Microtropeza fallax, new name.

M. sinuata Engel, Zool. Jahrb. 1925, 344-6.—Malloch, Proc. Lin. Soc. N. S. Wales, liii. 1928, 614; liv. 1929, 287; lv. 1930, 100. nec Donovan.

The species that is placed under this name is not uncommonly met with in collections.

Malloch's description of *sinuata* conforms here but he may have confused another species with it. Perhaps Engel was following *sinuata* as identified by Brauer who gave no description so this too is somewhat uncertain.

This is the largest species of the genus known to me and together with *intermedia* has a blue-black abdomen with a restricted white design; it differs from the latter species by the lack of marginal bristles on the second abdominal tergite, and in having the thoracic markings reduced to a general powdery white, the white spots being absent.

Hab.—Only known to me from Queensland where it seems to be a widely distributed species, but it is also recorded from New South Wales. As far as can be judged it is limited to the coastal area of these two States. I have taken this species only once, Brisbane, January, 1928, a female which is the holotype. A female allotype from Mt. Cotton, Brisbane, captured in February, 1928, by Mr. J. Mann, is also in my collection. Others are in the Queensland Museum.

Microtropeza intermedia Malloch.

M. intermedia Malloch, Proc. Lin. Soc. N. S. Wales, lv. 1930, 100.

Malloch compares the present species with his *latimana* (i.e. *sinuata* Don.) using minor characters for distinguishing it, but its alliance is

* Hardy (Proc. Lin. Soc. N.S.W. liv. 1929, 61-4) questions validity of type locality "Tasmania," in Macquart's Fourth Supplement, for nearly all species so recorded.

with *fallax*. It differs by the presence of an intermediate pair of marginal bristles on the second abdominal tergite, by the highly developed thoracic markings, including a very conspicuous median white stripe, interrupted at the suture, and by its smaller average size.

Hab.—This species is known to me from Queensland, and found breeding around the swamps at Sunnybank; 5 males and 6 females, September, 1937, and another male without a label.

Microtropeza obtusa Walker.

Tachina obtusa Walker, Ins. Saund. Dipt. 1856, 274.—Townsend, Canad. Ent. xlviii. 1916, 152 (*Gerotachina*)—Townsend, Ann. Mag. Nat. Hist. (10) ix. 1932, 40 (*Gerotachina*).

Echinomyia stolida Walker, Trans. Ent. Soc. Lond. (2) iv. 1857, 196.—Austen, Ann. Mag. Nat. Hist. (7) xix. 1907, 330 (*Microtropeza*).

Microtropeza ochriventris Malloch, Proc. Lin. Soc. N. S. Wales, liv. 1929, 287; lv. 1930, 100.

M. flavitarsis Malloch, ibidem, liv. 1929, 288; lv. 1930, 100.

M. flaviventris Malloch, ibidem, lv. 1930, 101.

Synonymy.—The two names given by Walker are conspecific according to Austen, and Malloch seems to have described the sexes under two other names. The third description given by Malloch under the name *flaviventris*, makes it necessary for the types of Walker to be examined again, for if one of these has a pair of apical bristles on the second tergite, then it would conform to Malloch's third form. On my Tasmanian specimens there are weak bristles in the position on two specimens and none on the third, hence it becomes difficult to see how the character can have specific value. This variable form bears five names in literature and should there be more than one incorporated in the material described, then better characters will have to be discovered to elucidate them.

The species is subject to a variation in markings particularly on the abdomen where the black median stripe may be almost if not quite absent. The size also varies greatly, a common feature in parasitic flies. All species, therefore, that have an abdomen with a ground colour of brown need to be placed here and if one is distinct, some valid structural character must be selected to establish it as a species.

Hab.—Tasmania and the mountain areas of New South Wales form at present the known distribution of this species. The record for Western Australia needs confirmation.

Microtropeza viridiventris Macq.

Masicera viridiventris Macquart, Dipt. Exot. suppl. 2, 1847, 68; suppl. 4, 1849, 190.—Brauer Sitz. Akad. Wiss. Wien 1897, 336.—Townsend, Canad. Ent. xlviii. 1916, 152 (*Tasmaniomyia*).

There is an abnormal form of *Microtropeza* that is related apparently to Macquart's species, the type of which Brauer placed in his *Amphibolia* group, but differing from *Microtropeza* and he referred to its metallic colouration. Townsend gave this a new generic name without seeing the type, nor did he place specimens under his genus which will fall to synonymy if the interpretation given by me be correct. Macquart quotes the locality as Tasmania but my specimen is from the Blue Mountains, New South Wales, January 1922 (C. Deuquet).

Subfamily PHAONIINAE.

Key to genera and species incorporated below.

1.	Female with a pair of bristles directed towards and normally crossing each other, situated on the interfrontalia between the two rows of bristles	2
	Female without such bristles on the frons	Other genera
2.	First median vein with a strong bend over its apical section, and directed towards the lower radial vein. Femora largely brown over the apical half, and the antennae are red or reddish over the basal half (Introduced)	*Muscina stabulans* Fall.
	The first median vein and the lower radial vein curving apically but very slightly towards each other. Antennae always black and the legs usually so	3
3.	Anterior femora on male with a ventral notch containing a spine	*Hydrotaea australis* Mall.
	Anterior femora on male without such spine ..	*Ophyra* 4
4.	Species with the face silvery, and a silver spot on the frons, just at the base of the antennae. Highly polished black species	6
	Species with head entirely black, no silvery markings. Abdomen blue, but the apical segment normally has a greyish pulverulent overlay	5
5.	Frons of the male about the width of the ocellar tubercle, that of the female as wide as the distance between the anterior ocellus and the base of the antennae	*O. analis* Macq.
	Frons of the male narrower, about two-thirds of the width of the ocellar tubercle, and that of the female correspondingly reduced	*O. rostrata* Desv.
6.	Eyes on the posterior border with a concave section	*O. fuscocalyptrata* Macq.
	Eyes on the posterior border without a concave section	*O. ? chalcogaster* Wied.

Under the name *nigra,* two species of *Ophyra* are standing in literature as one, and it is evidently due to this that Malloch has introduced into the Australian literature the name *chalcogaster* Wied., originally described from Java. This still leaves the relation with *Anthomyia nigra* Wied., 1830, from China, said to be widely distributed throughout the Orient, and reaching Australia, in a somewhat doubtful position. It is to be noted that *O. nigra* is supposed to have a white or yellowish squama whereas the form in Australia has this darkened at least on the majority of males. I give below a nomenclature that is perhaps less contentious and it is to be noted that in economic literature the names are frequently omitted due, apparently, to the general dissatisfaction felt with the naming of forms.

Genus *Hydrotaea* Desvoidy.

Hydrotaea Desvoidy, Easai Myodaires 1830, 509.

There are two specific names standing under this genus, but one is quite evidently misplaced, leaving a single recorded species acceptable in this position.

Hydrotaea australis Malloch.

H. australis Malloch, Ann. Mag. Nat. Hist. (9) xi. 1923, 667.—Malloch, Proc. Lin. Soc. N. S. Wales, 1. 1925, 40.

Hab.—Queensland and New South Wales.

Two specimens before me were reared from cow-dung (J. M. Bancroft 1920) a well known breeding habit for the genus, but apparently the species is not often met with under this condition in Australia.

Genus *Ophyra* Desvoidy.

Ophyra Desvoidy, Essai Myodaires 1830, 516.

Peronia Desvoidy, ibidem, 517.—Malloch, proc. Lin. Soc. N. S. Wales, li. 1926, 554.

Australophyra Malloch, ibidem, l. 1925, 40.—Malloch, Ann. Mag. Nat. Hist. (9) xi. 1923, 667.

Synonymy.—Hitherto this synonymy has been published only in part and I would point out that *Australophyra* was based upon *rostrata* Desvoidy, not on *analis* Macquart, as claimed, thus making the name an absolute synonym of *Peronia*. Both these names must fall to *Ophyra* as they were separated on minor characters. Malloch separated *Peronia* by the presence of some hairs on the hypopleura, adjacent to the spiracle, a character that is frequently absent in *analis*. Desvoidy separated it on the more prominent clypeus with which goes also the more prominent carina as this is part of the same general structure. This clypeus and its associated carina varies with the species and is valueless for generic distinction.

Ophyra rostrata Desvoidy.

Peronia rostrata Desvoidy, Essai Myodaires 1830, 517.

Hydrotea cyaneiventris Macquart, Dipt. Exot. suppl. 5, 1855, 118.—preoccupied Macquart 1849.

Ophyra analis of Authors in part (early authors record it under this name.)

Ophyra nigra of some early authors.

The synonymy is new.

Hab.—Queensland, New South Wales, Victoria and South Australia. There is also a female labelled "*Ophyra analis* N(ew) Z(ealand)" brought back from those islands by Professor T. Harvey Johnston, and is quite typical of *rostrata*, not *analis*, but possibly both species occur in those islands.

Ophyra analis Macquart.

O. analis Macquart, Dipt. Exot. suppl. 1, 1846, 202. nec other authors.

This specific determination is new and depends upon the fact that the present species is quite unknown to me outside the island from which it was originally described.

Hab.—Tasmania.

Ophyra fuscocalyptrata Macq.

Hydrotaea fuscocalyptrata Macquart, Dipt. Exot. suppl. 5, 1855, 119.

Ophyra nigra of authors, at least in part.

Wiedemann's *Anthomyia nigra* from China, in accordance with description does not agree with the present form. Macquart's description does agree except in so far as he quotes the presence of the spine typical of *Hydrotaca* and in which character he was probably mislead, and also he based his description on a specimen the legs of which had become brown, a not uncommon occurrence.

Hab.—Queensland and New South Wales, but probably widely distributed.

Ophyra chalcogaster Wied.

Malloch, Ann. Mag. Nat. Hist. (9) xi. 1923, 666.—which see for such characters as are quoted there but which may not all apply. The original description gives the abdomen as tinged with blue, which does not apply in the present case.

The species so-called by Malloch can be distinguished from *O. fuscocalyptrata* by the different posterior margin of the eye, and by the frons of the female being much narrower.

Hab.—Queensland, but the distribution is probably wide. It occurs throughout the year in Brisbane, and, so far, is the only one I have taken there in winter.

Muscina stabulans Fall.

Hab.—Queensland to South Australia, but probably more widely distributed. Introduced.

Specimens before me have been reared from rotted potatoes (J. M. Bancroft) and from carrion (O. W. Tiegs). The fly can be considered one of the so-called "quaternary flies" together with *Musca domestica* Lin., already recorded as such. The food in these two cases cannot consist wholly of animal matter, as their maggots thrive in dung, and the latter breeds in the daggs on sheep even in the early stages of myasis, and so it would appear that the house fly becomes associated with carrion, but not or hardly partaking of this food. Conversely cases of certain blowflies said to be breeding in decayed vegetation were subsequently found in this food contaminated with animal matter.